

Ech



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,095	09/18/2003	Chiihsin Kao	8834.0038	8763
22852	7590	09/20/2005		
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 901 NEW YORK AVENUE, NW WASHINGTON, DC 20001-4413			EXAMINER BOCURE, TESFALDET	
			ART UNIT	PAPER NUMBER
			2631	

DATE MAILED: 09/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/668,095

Applicant(s)

KAO ET AL.

Examiner

Tesfaldet Bocure

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 February 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-100 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-100 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 49,50,54-58, 88,89,93-97 and 99 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Chow et al.** (US patent number 5,479,447, newly cited).

**Chow et al. (Chow hereinafter)** teaches an adaptive bit and power allocating in a multi-carrier transmission system (figs 13 and 14) comprising: measuring the signal to noise ratio of the multi-carriers (see computing SNR in figs 9 and 10); determining the load capacity and power modification according to the maximum and minimum power level of each subcarrier and according to computed SNR (see computation of Bmax and

Art Unit: 2631

Ej in fig. 9 and starting col. 7, line 1 through col. 12, line 10) as in claims 49,57,88,97 and 99.

It should be noted that the system of Chow uses a power and power spectral constrain (claimed broad power margin) to calculate the bit and power allocation as is the case in the claims. See for example claim 1, clause (b) in the Chow's invention.

What **Chow** fails to teach is that the total bit rate is detected according to the detected load capacity and power modification factors. However, since bit rate is defined as the number of bit per given time to be transmitted and the system of **Chow** transmits a maximum allowable number of bit, it would have been obvious to one of an ordinary skill in the art to modify the system of **Chow** to calculate the total number of bits (bit rate) using the number of bits allocated in the multi-carriers at the time the invention was made.

**Chow** teaches the maximum number of bit and energy value (claimed power) are assigned to the multi-carrier transmission system according to the maximum performance margin (see col. 9), however he is silent in verifying the outcome as in claims 50 and 89. Therefore, using the performance margin and gain coding as a margin to calculate the bit loading and energy loading it would have been obvious to one of an ordinary skill in the art to verify that the bit and energy loading are achievable once it reaches the performance level at the time the invention was made.

Further to claims 54,55,56,58 and 94-96, Chow also teaches that:

Art Unit: 2631

The energy level (claimed power factor) to be modified is a function of the computed SNR, load capacity and sub-carriers having non zero capacity (see water-pouring graph in fig. 7 and the steps for calculating in cols 9-10) as in claims 54 and 93;

The bit loading algorithm in the system of Chow uses the steps of calculating the maximum number of bits within acceptable throughput (see fig. 9 and col. 7, lines 35-68) as in claims 55,56,94 and 95; and

the best carriers are selected according the maximum performance margin, therefore reads on the claimed enabling subcarriers in claims 58 and 96 (see col. 9, lines 30-59).

### ***Reissue Applications***

4. Applicant is reminded of the continuing obligation under 37 CFR 1.178(b), to timely apprise the Office of any prior or concurrent proceeding in which Patent No. 6,292,515 is or was involved. These proceedings would include interferences, reissues, reexaminations, and litigation.

Applicant is further reminded of the continuing obligation under 37 CFR 1.56, to timely apprise the Office of any information which is material to patentability of the claims under consideration in this reissue application.

These obligations rest with each individual associated with the filing and prosecution of this application for reissue. See also MPEP §§ 1404, 1442.01 and 1442.04.

5. The reissue oath/declaration filed with this application is defective because it fails to contain a statement that all errors which are being corrected in the reissue application

Art Unit: 2631

up to the time of filing of the oath/declaration arose without any deceptive intention on the part of the applicant. See 37 CFR 1.175 and MPEP § 1414.

6. The reissue oath/declaration filed with this application is defective because it fails to contain the statement required under 37 CFR 1.175(a)(1) as to applicant's belief that the original patent is wholly or partly inoperative or invalid. See 37 CFR 1.175(a)(1) and see MPEP § 1414.

7. The reissue oath/declaration filed with this application is defective because it fails to identify at least one error, which is relied upon to support the reissue application. See 37 CFR 1.175(a)(1) and MPEP § 1414.

8. The reissue oath/declaration filed with this application is defective because it fails to contain a statement that all errors, which are being corrected in the reissue application up to the time of filing of the oath/declaration, arose without any deceptive intention on the part of the applicant. See 37 CFR 1.175 and MPEP § 1414.

9. Claims 1-100 are rejected as being based upon a defective reissue oath under 35 U.S.C. 251 as set forth above. See 37 CFR 1.175.

The nature of the defect(s) in the oath is set forth in the discussion above in this Office action.

10. The original patent, or a statement as to loss or inaccessibility of the original patent, must be received before this reissue application can be allowed. See 37 CFR 1.178.

Art Unit: 2631

11. For each new claim added to the reissue by the amendment being submitted (the current amendment), the entire text of the added claim must be presented completely underlined. See 37 CFR 1.173(b)(2).

***Response to Amendment***

12. In response to Applicant's argument that:

This approach is simple, but its computational complexity is a direct function of the number of bits to be added or subtracted to achieve the target bit rate. Furthermore, this technique does not consider the power margin of the sub-channel, and for that reason, it is unable to approach the optimum performance. Finally, the bit fine-tuning process described in Chow is tied to the initial bit and energy loading algorithm, making it difficult for it (to be) be extended easily to other bit and energy loading implementations. (id., col. 5, lmines 51 - 60) Thus, as explained by Applicants in the 6515 patent, Chow fails to disclose or suggest determining bit loading capacities associated with the sub-channels at the power margin and determining a total bit rate at the power margin, as required by each of rejected independent claims 49, 88, 97, and 99. The Examiner has therefore failed to establish a prima facie case of obviousness, since Chow fails to teach or suggest all the claimed elements.

Examiner would like to bring Applicant's attention to read at claim 1 of Chow. Where the system of Chow dynamically improve the allocation of power and bits according to the power constrain. It should be noted that the claimed power margin in the instant application has been interpreted as a margin in which the system can perform the best, which is equivalent to the power constrain imposed in the system of Chow to improve the system performance.

13. As to Applicant's remarks with respect to the objection of the Oath and Declaration not complying according to rule 37 CFR 1.175(a)(1), Examiner have

exhausted looking at the 42 pages of the declaration and oath and couldn't find a statement that complies according to the rule.

14. If Applicant believe that there is another Oath or declaration filed other than the one filed on September 18, 2003, Examiner is kindly requesting Applicant to resubmit the Oath and Declaration. Otherwise, the one received on September 18, 2003 does not comply according to the 37 CFR 1.175 as indicated above

### ***Conclusion***

15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tesfaldet Bocure whose telephone number is (571) 272-



Art Unit: 2631

3015. The examiner can normally be reached on Mon-Thur (7:30a-5:00p) & Mon.-Fri (7:30a-5:00p).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

T.Bocure

Tesfaldet Bocure  
Primary Examiner  
Art Unit 2631

